

SPADE Administrative Note #71

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Progress Report 15 Aug 70 - 15 Feb 71

SPADE Group efforts were divided into three areas; continued development of the SEX System, support of network measurements, and the coordination of network development.

Changes were made to the operating system to separate the file system from the resident system so that files would not be destroyed when the system crashed or was shut down. The changes corrected defects in the system as delivered by LRL. The System can now be shut down and started up cleanly. A Garbage collector process is now included, and it serves two purposes. One is that unreachable circular structures are detected and their space reclaimed. The other is that file system consistency is forced with minimal loss of information after a crash.

With respect to reliability, the system is operational for seven hours daily and is subject to one or two crashes per week.

Improved interprocess communication facilities in the form of events have been added. We are looking into interprocess communication more deeply, and expect the SEX System to evolve in line with our investigation.

A background Batch process was designed and implemented to provide service to our non-interactive users. It is considerably more flexible than the manufacturer supplied Batch-only systems, but suffers somewhat from uninspired scheduling algorithms.

A background process to supervise tape input-output was designed and written. The FORTRAN Library supplied by the manufacturer, was debugged. A more flexible user level exec was designed and written. A couple of text editors were designed and are nearing completion. Finally, our NCP is nearing completion.

With respect to our hardware and physical arrangements, four consoles were acquired, and a separate console room was established. Additional lines were added to the communications controller to expand service to twelve terminals.

### Network Measurements

The SPADE Group has supported Jerry Cole's measurements programs to setup and record Network measurements and to generate new traffic were written for the stand alone system, and a series of measurements were made. Measurement Programs are now being written for the SEX System and the first set are operational. In the next six months we will have facilities to selectively measure network activity, with selection changing dynamically as a function of network activity, and to achieve these measurements, subject to administrative constraints, all network measurements are controllable from any network site.

### Network Development

Our role here is to coordinate network development and lead the Network Working Group, and all of our effort is necessarily intertwined with the work of other sites. Moreover we are quite often concerned with initiating tasks whose substance carried out elsewhere, or with stimulating a flow of ideas or efforts of concern during this period as the official protocol, higher level protocol, visits to the hosts, host profiles, and priorities a schedule.

The Host-to-Host protocol became official in August, and we have spent some time consulting with other sites on details.

A tentative "DIAL-UP" and teletype protocol was developed in August and is waiting for experimental use.

Protocol for graphics was considered and efforts organized to pursue the matter.

Some work was put into accumulating information about the various hosts. The hosts were all visited, and then BBN was assigned the task of building up Hosts profiles. Their work is in progress.

The network working Group met in Houston during the FJCC, and brought out issues concerning protocol, particularly the incompatibility of Line-Oriented local echo devices with character-oriented remote echo systems. It was agreed that this incompatibility would prevent users with line-oriented consoles from using some character-oriented systems, but that this was not the most common case and could be tolerated. The output of the NWG has been about 25 requests for Comments during this half year. Finally we have been looking at priorities and schedules for network development and are producing a report which will be ready by the end of January 1971.